



IEEE CINCINNATI SECTION NEWSLETTER – JAN. 2010

JANUARY MEETING

Active Tonal and Broadband Noise Control for Magnetic Resonance Imaging Systems

DATE: Thursday, January 28, 2010
PLACE : Raffel's – 10160 Reading Road (see below for directions)
TIME : 5:30 p.m. to 6:00 p.m. - Social Time
6:00 p.m. to 7:00 p.m. - Dinner
7:00 p.m. to 8:30 p.m. - Presentation
COST FOR DINNER: \$10.00 per person – Regardless of Membership or Membership Grade!

NOTE: DINNERS ARE ALWAYS OPTIONAL - YOU MAY ATTEND THE PROGRAM ONLY.

MENU SELECTIONS: Spinach Stuffed Tomato, Fried Tilapia w/ Lemon Caper Sauce, Beef Stroganoff. Buttered Potatoes, Steamed Broccoli, Buttered Noodles, Salad, and Rolls, Coffee, Tea, Iced Tea, Soft Drinks. There is also a bar available for the purchase of alcoholic drinks.

LOCATION: Raffel's is located at 10160 Reading Road, south of Glendale-Milford Road on the east side of Reading. Take I-75 to the Glendale-Milford Rd. Exit, go east on Glendale-Milford Road approximately $\frac{3}{4}$ of a mile to Reading Rd. and turn right on Reading.

RESERVATIONS: Please email Fred Nadeau for reservations at Reservations@ieeeCincinnati.org (preferred) or call the Section Voice Mail at 513-629-9380 by **Noon, Tuesday, January 26, 2010** if you plan to attend. Please leave your Name, IEEE Member Number, and a daytime telephone number.

PE CREDITS: Depending on the subject matter, attendance at IEEE Cincinnati Section Meetings now qualifies the attendee for Professional Development Hours towards renewal of Professional Engineers Licenses. Required documentation will be available following the meeting! The Section Meetings also provide a great opportunity to network with fellow engineers in the area.

ABOUT THE MEETING: Magnetic Resonance Imaging (MRI) is a powerful medical diagnostic tool. However, an undesirable side effect is the loud noise produced during scanning. This noise is unpleasant at best, and must be considered when determining imaging protocol to avoid the potential of harming the patient. A research project to develop an active noise control system for MRI patients has been under way at the University of Cincinnati over the last few years. This work is a collaborative effort between the Mechanical Engineering Department and the College of Medicine's Center for Imaging Research. It has resulted in an operational prototype that has been demonstrated during in-situ scanning, with significant reduction in sound pressure levels measured at the "patient's" ear.

Brent W. (Bernie) Rudd, P.E., a Mechanical Engineering Ph.D. candidate at UC, is a member of the research team developing the control system for MRI noise. He will share the history of the project, including background information on MRI systems, the technical challenges of developing the system, and recent results.

MEMBERSHIP NEWS

NEW MEMBERS

The following individuals are IEEE members who are new to our Section:

Balaji Ananthanpillai	Jason Michael Hehman
Asitha U. Bandaranayake	Peter A. Jamieson
Jing Chen	Bernard Knueven
Henry David Clark	Bernard Kossenjans
Gary Lee Evans	Ndabezinhle Ndabeni-Ncube
Wei Huang Fu	Logan Romantic
Jeff Glaspie	Daniel K. Ryan
Morgan Griffith	Balasubramanian Sethuraman
Adam J. Gross	Brian Wagner
Jacob Haney	Nicholas Wanstrath
Jeffrey Michael Heeney	Xubing Xia

We wish to welcome these new members to the Cincinnati Section!!!

2009 IEEE Cincinnati Section Election Results

Stephen Fridrick has been elected Member-At-Large and will be serving from January 1, 2010 through December 31, 2011.

UC Robotics Team Will Design for Senior Citizens

The 2010 UC Robotics Team has again entered the Intelligent Ground Vehicle Competition (<http://www.igvc.org>) for the 18th year.

Their project is to convert a Motorized Scooter into a computer controlled device that would permit senior citizens or people with disabilities to be transported around campus. One variation would even permit someone without arm control to use muscle or mind control. They have a special focus this year called "Aid to the Elderly".

They have a new donated Motorized Scooter shown at:

<http://picasaweb.google.com/RobotProf/TheSCOOTERStoreDonationToUCRobotTeam#>

The Team Needs Our Help

They have asked a few engineering organizations for a small amount of funding to get a motor, a gearbox, a small laptop computer and a mind control sensor. RESC has been one of the organizations they asked.

They also welcome your participation with the project. They meet each Friday during the academic year in Room 551 Baldwin Hall and would welcome anyone.

For the Project Brochure and details on how to contribute financially to the team, go to <http://www.ieeecincinnati.org/wp-content/uploads/2009/12/robotics-2010-brochure.pdf>

If you can HELP, please contact : Dr. Hall at hallel@ucmail.uc.edu

Additional details can be found at http://resc.org/pages/uc_robotics.htm

See <http://www.coolest-gadgets.com/20060713/mind-control-sensor-is-a-reality/>

The student team is shown at:

<http://picasaweb.google.com/RobotProf/ScooterBeingExaminedByUCRobotTeam>

Thank you for your support and help.

Science Olympiad in need of EE Volunteer

The Cincinnati Regional Science Olympiad, an annual science competition, needs a volunteer to run the SHOCK VALUE event this year. This is a perfect opportunity for you, an electrical engineer, to have some fun, to motivate students and to help the community. The event is held on March 6, 2010 at Raymond-Walters. You would be responsible for creating an activity to test basic understanding of electricity, magnetism and simple electrical devices. Contact Brian Resnick for more details (Brian.Resnick@ieee.org).

Scanning the Past: A History of Electrical Engineering from the Past

Submitted by Bob Morrison, Editor

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Fireless Fireworks: Lighting at the Panama-Pacific Exposition in 1915

Eighty years ago this month, Walter D'Arcy Ryan presented a paper at a meeting of the American Institute of Electrical Engineers (AIEE) on the illumination of the Panama-Pacific International Exposition. Ryan had served as Chief of Illumination for the Exposition and he also served as the Director of the Illuminating Engineering Laboratory for the General Electric Company (GE). American poet Edwin Markham characterized the spectacular Exposition lighting as "the greatest revelation of beauty that was ever seen on the earth." Ryan's paper, as published in the 1916 volume of the TRANSACTIONS OF THE AIEE was lavishly illustrated with color plates showing illuminated buildings, towers, fountains, and other features of the Exposition. This blending of aesthetics and illumination engineering produced perhaps the most elegantly illustrated technical paper ever included in the TRANSACTIONS.

The lighting system at the Exposition was said "to have initiated a new era in the art of illumination" through the use of screened floodlights combined with relief lighting, rather than strings of lights to outline structures. Ryan wrote that the lighting of the Exposition "appealed to the imagination and feelings of the masses, and carried a message much the same as painting or music." Rather than designing the system for maximum efficiency from a narrow engineering point of view, he had sought to bring out "the architectural beauties" of the structures "in the most effective manner, bathed in a harmony of color." However, the design work had been done in a highly scientific manner based on preliminary tests and calculations performed at the GE Illuminating Engineering Laboratory .

One of the more interesting features of the Exposition was the so-called "Tower of Jewels," which contained more than 100,000 "novagem jewels." Cut from glass having a high index of refraction, these "jewels" were mounted to move in the wind while illuminated with projected light. The tower was flooded by light from a series of arc light projectors which were equipped with screens to enable variation in color. Red relief lighting filled in shadows cast by the flood lights.

Another technique used to entertain spectators was the "electric-steam color scintillator" which combined beams of colored and white light from a battery of searchlights with smoke and steam to produce "fireless fireworks."

This was said to provide "artistic color combinations and blendings impossible with ordinary fireworks." The visual effects were further enhanced by means of a steam locomotive operated at high speed with its brake on to produce "great volumes of steam and smoke. ..which, when illuminated with various colors, created a wonderful spectacle." The scintillator used a suite of 48 hand-controlled arc projectors, each equipped with seven colored gelatine screens, enabling diverse lighting effects.

An "electric kaleidoscope" illuminated the glass dome of the Palace of Horticulture with light from 12 projectors which produced beams "intercepted by revolving color screens and shadow bars" before passing through a system of revolving lenses. Two 95-ft high fountains located in the Court of the Universe were highlighted by means of 96 lamps in 12 rows which consumed 144 kW of power. The extensive use of colored gelatine screens in the Exposition system enabled the operators to use green illumination on March 17, orange on Orange Day, and red on the ninth anniversary of the "burning of San Francisco."

Ryan also directed other lighting extravaganzas including lighting Niagara Falls for a month in 1907 by means of 44 searchlights with color screens, but the Panama-Pacific Exposition proved to be his greatest tour de force. Those members of the AIEE who did not attend the Panama-Pacific Exposition must have felt considerable astonishment and delight upon receiving that issue of the TRANSACTIONS containing Ryan's paper with its marvelous color-plate illustrations.

*James E. Brittain
School of History , Technology and Society
Georgia Institute of Technology*

IEEE NEWS

IEEE-USA Releases Third E-Book in Innovation Series -- 'Fostering an Innovation Subculture'
WASHINGTON (25 November 2009) -- IEEE-USA has released the third e-book in its innovation series, "Doing Innovation: Creating Economic Value," this one focusing on "Fostering an Innovation Culture."

Author Gus Gaynor, a retired 3M director of engineering, writes that this third book "provides the fundamentals for developing a culture that supports innovation." These fundamentals, according to Gaynor, include "finding the right people and providing the freedom to act, but with discipline; implementing effective and supportive management practices; providing the organizational resources and infrastructure; and promoting an organizational attitude that focuses on achieving results."

Topics include:

- Organizational Culture
- Research Perspectives
- Optimizing People Involvement
- Encouraging Professional Attitudes
- Developing Appropriate Management Practices
- Some Parting Shots

You can purchase your copy of "Doing Innovation: Creating Economic Value – Book 3: Fostering an Innovation Culture" at <http://www.ieeeusa.org/communications/ebooks/> for the IEEE member price: \$9.95. The nonmember price is \$19.95. IEEE members can purchase other IEEE-USA E-Books at deeply discounted member prices -- and download some free e-books.

To purchase IEEE members-only products and to receive the member discount on eligible products, members must log in with their IEEE Web account.

IEEE Homeland Security Conference Seeks Technical Papers, Posters, Tutorials

WASHINGTON (3 December 2009) -- Organizers of the 2010 IEEE International Conference on Technologies for Homeland Security (HST 10) are seeking technical papers, posters and tutorials in the following areas:

- Homeland cyber security
- Land & maritime border security
- Attack & disaster preparation, recovery & response
- Counter-WMD techniques & key resources protection physical security

Accepted papers will be published by IEEE and presented at HST 10 at the Westin Waltham Boston in Waltham, Mass., USA, 8-10 November 2010. At least one author of an accepted paper has to register for the conference and pay the conference fee.

The event, the 10th in an annual series, will bring together leading researchers and innovators working on technologies designed to deter and prevent homeland attacks, protect critical infrastructures and people, mitigate damage and expedite recovery. Input from international partners is encouraged.

Papers should focus on technologies capable of deployment within five years, particularly applied research addressing areas in which breakthroughs are needed. Proposals should be no more than 500 words. Tutorial and poster submissions should include a one-page abstract and one-page biography.

Here are important 2010 submission dates to keep in mind:

- Abstract & tutorial proposal deadline: 24 April
- Tutorial acceptance notification: 10 May
- Full paper submission deadline: 25 June
- Paper acceptance notification: 6 August
- Poster abstract submission deadline: 13 August
- Poster acceptance notification: 27 August
- Publication-ready paper deadline: 3 September
- Tutorial presentation deadline: 3 November

All submissions must describe original work not previously published or currently under review for publication in another conference or journal. Instructions can be found at http://www.ieee.org/portal/cms_docs/pubs/confpubcenter/pdfs/samplems.pdf.

For more information on submitting paper, poster and tutorial proposals, go to http://www.ieee-hst.org/technical_program/cfp/HST_2010_CFP_Nov_24_09.pdf.

For general information on the conference, see <http://www.ieee-hst.org/>.

The IEEE Boston Section (<http://www.ieeeboston.org/>) is producing HST 10 with organizational support from IEEE-USA. More than 450 people attended the 2009 conference, including representatives from at least 10 foreign countries. The Department of Energy National Nuclear Security Administration, Department of Homeland Security Science & Technology Directorate and the DHS Domestic Nuclear Detection Office are providing technical assistance.

LOOK FOR IEEE-USA-SUPPORTED LOCAL TV NEWS REPORTS ON IEEE-RELATED TECHNOLOGIES IN YOUR COMMUNITY

Four new 90-second reports on IEEE-related technologies and breakthroughs were distributed in November to 83 U.S. TV stations for broadcast on the local news, with support from IEEE-USA.

The technology reports covered: (1) a next generation of cars, with systems allowing cars to communicate and warn drivers about hazardous conditions; (2) a wind tunnel to study the effects of hurricane-strength winds on buildings and other structures; (3) a video-based flow measurement technique used by Olympic swimming coaches to train their teams; (3) a bus locator program for both computers and cell phones that allows passengers to track when buses will arrive at their destinations; and (4) a turbine blade that increases the efficiency of drawing energy from the wind.

Look for these reports on local newscasts carried on TV stations from Atlanta (WUVG) to West Palm Beach, Fla. (WPTV); and from Chicago (WFXT and WGBO) to Seattle (KING and KONG). To see how a local TV station broadcasts these technology briefs, go to the story on "Doppler Radar Tracking Babies," aired on WCPO in Cincinnati at <http://aip.org/dbis/stories/2009/10089.html>.

IEEE emeritbadges.org Launches Updated Web Site

22 November 2009 - The IEEE emeritbadges.org project has updated its web site, www.emeritbadges.org, featuring hands-on, pre-college technology educational materials for boys and girls. The updated site will feature information on the program's sponsorship of the Electricity and Electronics Merit Badge booths at the 2010 National Scout Jamboree, to be held from 26 July to 4 August, 2010, at Fort A.P. Hill, in Caroline County, Virginia.

IEEE emeritbadges.org, which volunteers have developed and run, provides instructional materials based on the Boys Scouts' Electricity and Electronics Merit Badge requirements. Materials are under development for the Computer Merit Badge. A team of emeritbadges.org Jamboree volunteers, recruited from across the United States and around the world, will teach Scouts the basics of electricity and electronics at the 2010 National Scout Jamboree. Scouts also will learn about technical careers and build a microprocessor-based kit that they can take home. During the 10-day long-event, approximately 100 volunteers will be manning these two booths, using the emeritbadges.org-developed materials to help 1,500 to 2,000 boys learn about electrical fundamentals, simple electronic circuits and microprocessors. The course materials and tests reinforce and supplement the Boy Scout Merit Badge Pamphlet requirements and provide the necessary knowledge for the boys to earn these two badges.

Any student, boy or girl can use the program to enhance technical literacy and learn more about viable engineering and other technical career options.

Similar to its counterpart, the IEEE GirlsGoEngineering.org mission is to energize girls toward careers in engineering, mathematics, and the physical sciences. A major component is a volunteer developed and run website, www.GirlsGoEngineering.org, which provides science and engineering career and instructional programs, activities, materials and web resources of interest to girls, educators, and adult leaders. Other planned activities include participation in Girl Scout events and similar organizations to enlighten girls about careers in science and engineering.

To foster an interest in the engineering profession, IEEE serves students, members and colleges around the world. IEEE realizes that high school student exposure to the accomplishments of engineers is critical to increase engineering enrollment significantly at the university level. Thus, the IEEE created and sponsors the IEEE Scouting program, primarily through the Boy Scout organization and local Girl Scout groups. The

program is designed to reach pre-university students and educators to “enhance the level of technological literacy of pre-university educators and students worldwide.”

Fourth E-Book in IEEE-USA Innovation Series Released -- 'What it Takes To Be an Innovator'
WASHINGTON (15 December 2009) -- Complete your set in IEEE-USA's e-book series on innovation with the fourth and final e-book, "What it Takes To Be an Innovator."

In his latest book, author Gus Gaynor "discusses the critical element in innovation -- the innovator." He provides a picture of what an innovator could -- and should -- bring to an organization, including characteristics and attitudes, and discusses some famous innovators.

Book 1: "Perspectives on Innovation," gave an understanding of what innovation involves and how it takes place. Book 2: "Developing a Workable Innovation Process," focused on the innovation process -- with emphasis on designing the innovation process from a systems perspective. Book 3: "Fostering an Innovation Culture" provided the fundamentals for developing a culture that supports innovation.

You can purchase your copy of "Doing Innovation: Creating Economic Value -- Book 4: What it Takes To Be an Innovator" at www.ieeeusa.org/communications/ebooks for the IEEE member price: \$9.95. The nonmember price is \$19.95.

IEEE members can purchase other IEEE-USA E-Books at deeply discounted prices -- and download some free e-books.

To purchase IEEE members-only products and receive the member discount on eligible products, members must log in with their IEEE Web account.

IEEE-USA President Praises Retiring House Science & Technology Committee Chairman
WASHINGTON (15 December 2009) -- IEEE-USA President Gordon Day praised Rep. Bart Gordon (D-Tenn.) today for his key role in maintaining the United States' global leadership in science and technology. Gordon, chairman of the House Science & Technology Committee, announced yesterday that he would not seek re-election in 2010.

Gordon was one of the principal architects of the bipartisan America COMPETES Act, which in 2007 turned into law many of the recommendations of the National Academies' 2005 report, "Rising Above the Gathering Storm." He then fought for funding of the new programs, achieving substantial success in 2009.

"I salute Chairman Gordon's visionary leadership in science and engineering legislation," Day said. "He understands the close linkage between technology and the economy, and his initiatives are stimulating innovation, building competitiveness and creating jobs. We hope that Congress reauthorizes the COMPETES Act and continue to increase funding for the programs it established."

Gordon's many other achievements include important legislation on energy and health IT. He and Rep. Cliff Stearns (R-Fla.) were also the lead sponsors of a May 2009 congressional resolution recognizing IEEE's 125th anniversary, which passed the U.S. House of Representatives 409-0.

"On behalf of 210,000 U.S. IEEE members, I thank Chairman Gordon for his quarter century of public service and wish him the best on the next phase of his personal and professional life." Day said.

IEEE-USA Launches Program to Assist High-Tech Entrepreneurs

WASHINGTON (18 December 2009) -- If you're a high-tech entrepreneur looking for some feedback on your new business plan, IEEE-USA TechMatch is for you. IEEE-USA has established a strategic alliance with The Business Catapult to offer this feedback service free to IEEE members.

"TechMatch provides IEEE members the benefit of interacting with IEEE-USA volunteers who are well-versed entrepreneurs and have gone through the process of starting companies," IEEE-USA Entrepreneurial Activities Committee Co-Chair Mauro Togneri said. "We're not providing business advice, but we are able to share our experience."

Here's how it works. First, you receive a detailed, automated assessment of your business plan and objectives, and then a committee of experienced reviewers provides sustained, customized feedback to help improve the plan prior to presentation to prospective investors.

After you submit your plan online, you fill out the Benchmark Survey and Investment Summary and upload your executive summary and other relevant documents. In the Benchmark Survey, you are asked about your business concept and strategy. Based on your answers, a Benchmark Report demonstrates how your business compares with businesses that have achieved key success milestones.

The Investment Summary provides a clear snapshot of the investment opportunity to potential investors and helps educate you on how to think like an investor.

Your plan is then assigned to an advisory team, which review it and make detailed comments in eight key areas on how it can be improved. The plan is returned to you with a recommendation on how to proceed and whether you're ready to seek funding. If you wish to submit your plan to investors, you may then transfer it to Business Catapult's general deal flow (a fee may apply).

In June, IEEE-USA and the U.S. Small Business Administration signed an agreement to assist high-tech entrepreneurs starting new businesses. Both organizations pledged mutual cooperation in promoting, strengthening and expanding small business development throughout the country.

The IEEE Cincinnati Section Executive Committee **Member Names and Phone Numbers**

Cincinnati Section Voice Mail	513-629-9380 (call for meeting reservations)
Section Web Page	http://www.ieeecincinnati.org/
Charlie Nash - Chair	513-576-3612, cnash@ieee.org
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Brian J. Resnick - Treasurer	513-701-5792 (Office), Brian.Resnick@ieee.org
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